

What is claimed is:

1. A method for forming an organ and/or tissue from undifferentiated cells derived from a vertebrate animal in vitro, which comprises the step of culturing the undifferentiated cells derived from a vertebrate animal in the presence of a retinoic acid X receptor ligand.

2. The method according to claim 1, wherein the retinoic acid X receptor ligand is a retinoic acid X receptor agonist or antagonist.

3. The method according to claim 2, wherein the retinoic acid X receptor ligand is selected from the group consisting of:

4-[5H-2,3-(2,5-dimethyl-2,5-hexano)-5-methyldibenzo[b,e][1,4]diazepin-11-yl]benzoic acid, 4-[2,3-(2,5-dimethyl-2,5-hexano)dibenzo[b,f][1,4]thiazepin-11-yl]benzoic acid, 4-[2,3-(2,5-dimethyl-2,5-hexano)dibenzo[b,e]azepin-11-yl]benzoic acid, 4-[1,3-dihydro-7,8-(2,5-dimethyl-2,5-hexano)-1-methyl-2-oxo-2H-1,4-benzodiazepin-5-yl]benzoic acid, (Z)-5-[4-[N-methyl-(5,6,7,8-tetrahydro-5,5,8,8-tetramethylnaphthalen-2-yl)carboxamido]benzylidene]-2,4-thiazolidinedione, (Z)-5-[4-[N-methyl-N-(5,6,7,8-tetrahydro-3,5,5,8,8-pentamethylnaphthalen-2-yl)amino]benzylidene]-2,4-thiazolidinedione, 4-[N-cyclopropylmethyl-N-(5,6,7,8-pentamethylnaphthalen-2-yl)amino]benzoic acid, 2-[N-cyclopropylmethyl-N-(5,6,7,8-tetrahydro-5,5,8,8-tetramethylnaphthalen-2-yl)amino]pyrimidin-5-carboxylic acid, 4-[1-(5,6,7,8-tetrahydro-5,5,8,8-tetramethylnaphthalen-2-yl)-1,3-dioxolan-1-yl]benzoic acid, 4-[1-(5,6,7,8-tetrahydro-3,5,5,8,8-pentamethylnaphthalen-2-yl)ethen-1-yl]benzoic acid, 6-[1-(5,6,7,8-tetrahydro-3,5,5,8,8-pentamethylnaphthalen-2-yl)cycloprop-1-yl]pyridine-3-carboxylic acid, 4-(5H-2,3-(2,5-dimethyl-2,5-hexano)-5-methyl-8-nitrodibenzo[b,e][1,4]diazepin-11-yl)benzoic acid, 4-[5H-2,3-(2,5-dimethyl-2,5-hexano)-5-n-propyldibenzo[b,e][1,4]diazepin-11-yl]benzoic acid, 4-(5H-10,11-dihydro-2,3-(2,5-dimethyl-2,5-hexano)-5,10-dimethyl-8-phenyl-dibenzo[b,e][1,4]diazepin-11-yl)benzoic acid, 2-[N-(3-n-hexyloxy-5,6,7,8-tetrahydro-5,5,8,8-tetramethylnaphthalen-2-yl)-N-methylamino]pyrimidine-5-carboxylic acid, 5-[4-(5,6,7,8-tetrahydro-5,5,8,8-tetramethylnaphthalen-2-yl)phenyl]tropolone, (2E,4E,6Z)-3-methyl-7-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-3-n-propyloxy)naphthalen-2-yl)octa-2,4,6-trienoic acid (LG100754) and 4-[N-[3-(2-ethyl-o-carboran-1-yl)phenyl]-N-methylamino]benzoic acid.

4. The method according to any one of claims 1 to 3, wherein the organ and/or

tissue to be formed is a heart, a smooth muscle tissue, or an adipocyte tissue.

5. An organ and/or tissue formed by the method according to any one of claims 1 to 4.

6. A differentiation inducer for forming an organ and/or tissue from undifferentiated cells derived from a vertebrate animal in vitro, which comprises a retinoic acid X receptor ligand.

7. A method for forming a pancreas from undifferentiated cells derived from a vertebrate animal in vitro or a method for forming a tissue having morphology and function of a pancreas from undifferentiated cells derived from a vertebrate animal in vitro, which comprises the step of culturing the undifferentiated cells derived from a vertebrate animal in the presence of a retinoic acid receptor ligand, together with activin, that does not substantially bind to the retinoic acid receptor subtype γ .

8. The method according to claim 7, wherein the retinoic acid receptor ligand is 4-[(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthalenyl)carbamoyl]benzoic acid.

9. A differentiation inducer for forming a pancreas from undifferentiated cells derived from a vertebrate animal in vitro or forming a tissue having morphology and function of pancreas from undifferentiated cells derived from a vertebrate animal in vitro, which comprises a retinoic acid receptor ligand that does not substantially bind to the retinoic acid receptor subtype γ .